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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,674	05/18/2001	Yoshifumi Natsuyama	JP920000096US1	3666
877	7590	06/16/2004	EXAMINER	
IBM CORPORATION, T.J. WATSON RESEARCH CENTER P.O. BOX 218 YORKTOWN HEIGHTS, NY 10598			RUDE, TIMOTHY L	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/681,674	<b>Applicant(s)</b> NATSUYAMA, YOSHIFUMI	
	<b>Examiner</b> Timothy L Rude	<b>Art Unit</b> 2871	

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 9-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation "resulting from a difference in coefficients of linear expansion between the glass substrates" is not consistent with the Specification. Please note that Specification, Page 7, Para [0035], cites a difference in coefficients of linear expansion between the glass substrates and the circuit board. Examiner considers the coefficient of linear expansion of the glass substrates to be one value and the coefficient of linear expansion of the circuit board to be a different value.

It is respectfully pointed out that Figure 6 clearly shows anchor holes, 16, for anchor pins, 24, that are some distance away from glass substrate, 42. Examiner cannot find any teaching as to how anchor holes and anchor pins can be remotely located from glass substrate, 42, and yet be in a path region of substantial propagation of stress therefrom. Examiner believes Specification, Page 7, Para [0035] to be a correct teaching while Specification, Page 10, lines 22-24 is simply in error.

Examiner anticipates the Applicant may correct the claim language, so for examination purposes, the present claim language is considered rejected under 35

U.S.C. 112, second paragraph, and the anticipated claim language shall be considered to mean a difference in coefficients of linear expansion between the glass substrates and the circuit board wherein the coefficient of linear expansion of the glass substrates is one value and the coefficient of linear expansion of the circuit board is a different value. Rejections consistent with the anticipated claim language appear below.

***Claim Rejections - 35 USC § 103***

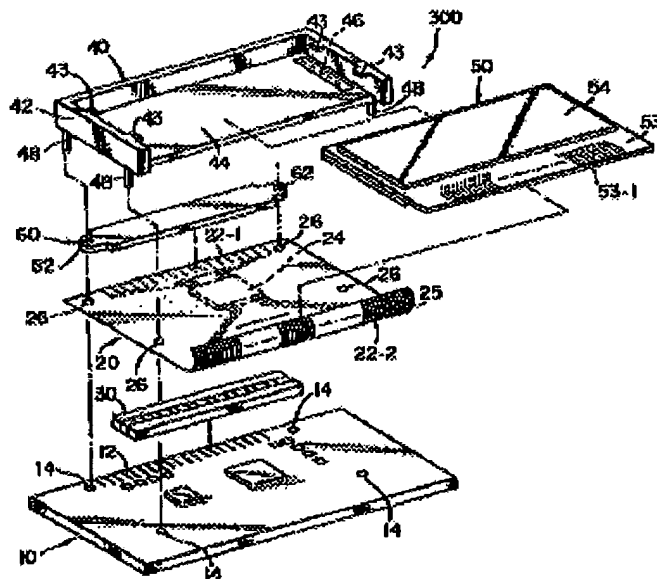
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu USPAT 6,191,838 B1 in view of Glaser et al (Glaser) USPAT 4,550,039.

As to claim 4, Muramatsu discloses in his third embodiment, [Figures 11 and 12, col. 10 line 66 through col. 13, line 6] a liquid crystal display device, 50, comprising: a pair of glass substrates facing each other, each having electrodes for applying voltage to a liquid crystal material on a facing surface (typical); a circuit board, 10, for supplying said voltage; and a liquid crystal driver tape carrier package, [20, col. 11, lines 7-9 and col. 7, lines 1-3] for connecting said electrodes of said glass substrates to said circuit board and mounting a liquid crystal driver chip [col. 11, lines 7-9 and col. 7, lines 4-13], wherein said liquid crystal driver tape carrier package and said circuit board anchor

Figure 11



Glaser teaches the use of soldering conductive pins [col. 3, lines 44-49 and col. 3, line 67 through col. 4, line 11] to make electrical connections with more efficient

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routing of lead wires [col. 1, line 67 through col. 2, line 5], provide a more rigid mount, and reduce the cost of manufacturing.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Muramatsu with the soldering of conductive pins of Glaser to make electrical connections with more efficient routing of lead wires, provide a more rigid mount, and reduce the cost of manufacturing.

As to claim 5, Muramatsu discloses the liquid crystal display device further comprising a light guide, [44 Applicant's frame], for allowing said anchor pins to stand on a surface holding said pair of glass substrates, wherein said liquid crystal driver tape carrier package and said circuit board are fixed to said frame.

As to claim 6, Muramatsu discloses the liquid crystal display device wherein a pair of said anchor holes, 26, is located with said liquid crystal driver chip, 24, between [diagonally per Figure 11].

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu in view of Glaser, as applied to claims 4-5 above, and further in view of Yamagishi et al (Yamagishi) USPAT 5,771,158.

As to claim 7, Muramatsu in view of Glaser discloses the liquid crystal display device according to claim 5 comprising soldered conductive anchor pins.

Muramatsu in view of Glaser does not explicitly disclose a grounding conductor formed on said frame, and said conductive anchor pins are conductively connected to said grounding conductor.

Yamagishi teaches the use of a ground plane to reduce radiation emissions and avoid harmful interference with other electric appliances [col. 4, lines 44-65 and col. 3, lines 30-40].

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Muramatsu in view of Glaser with the ground plane of Yamagishi to reduce radiation emissions and avoid harmful interference with other electric appliances.

### ***Response to Arguments***

4. Applicant's arguments filed on 17 March 2004 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

(1) Claim 4 is enabled as written.

(2) The pins of Muramatsu are not located in a path region of substantial propagation of stress resulting from a difference in coefficients of linear expansion between said glass substrates and said circuit board. The combination does not teach same.

(3) Glasser discloses the use of non-conductive insulating materials around the connector pins which would not permit the claimed soldering.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that, regardless of enablement, Applicant's Figure 6 clearly shows anchor holes, 16, for anchor pins, 24, that are some distance away from glass substrate, 42. Examiner cannot find any teaching as to how anchor holes and anchor pins can be remotely located from glass substrate, 42, and yet be in a path region of substantial propagation of stress therefrom. Examiner believes Specification, Page 7, Para [0035] to be a correct teaching while [in contrast to the teaching on Page 7] Specification, Page 10, lines 22-24 is simply in error.

(2) It is respectfully pointed out that the pins of Applicants claimed invention do not penetrate the glass substrates. They merely penetrate the tape carrier package, circuit board, and optionally a frame. Muramatsu teaches a configuration where pins penetrate such items, and the glass substrates are constrained by other means whereby, according to Applicant's enabling disclosure, the pins would be located in a path region of substantial propagation of stress resulting from a difference in coefficients



of linear expansion between said glass substrates and said circuit board. This is not improper hindsight. Applicant's enabling disclosure confirms that the structure of Muramatsu in view of Glaser would have the claimed properties since the pins are located astride the circuit lines of the tape carrier package.

(3) It is respectfully pointed out that Yamagishi teaches the use of a ground plane to reduce radiation emissions and avoid harmful interference with other electric appliances. Yamagishi is applied to provide the metal to which the pins would be soldered with motivation to combine.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Monday through Thursday.

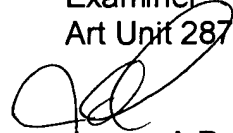
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



tlr

Timothy L Rude  
Examiner  
Art Unit 2871



James A Dudek  
Primary Examiner  
Art Unit 2871